CLAIMS

1. A discharge processing method, wherein an insulating processing medium is interpolated between an electrode and a processing subject and discharging energy is supplied between the electrode and the processing subject so that the processing subject is processed by the discharge, wherein a processing is carried out with the electrode being pressed onto the processing subject at a predetermined pressure so as to allow the processing medium to form a thin film while the electrode and the processing subject are being relatively moved.

2. The discharge processing method according to claim 1, wherein the thin film is formed with a thickness of 0.1 to 1 μm.

3. The discharge processing method according to claim 1, wherein the relative movement is carried out in a spiral manner.

4. The discharge processing method according to claim 1, wherein a lubricant is used as the processing medium.

5. The discharge processing method according to claim 1, wherein grease is used as the processing medium.

6. The discharge processing method according to claim 1, wherein a material formed by allowing a polymeric water absorber to absorb water is used as the processing medium.

7. The discharge processing method according to claim 1, wherein silicon powder is mixed into the processing medium.

8. The discharge processing method according to claim 1, wherein a green compact, which is formed by compressing and molding metal such as titanium that forms a hard compound such as titanium carbide (TiC) or powder thereof, is used as the electrode, and a processing medium containing carbon is used as the processing medium.

9. The discharge processing method according to claim 1, wherein a green compact, formed by compressing and molding the same material as that of the processing subject or powder thereof, is used as the electrode.

10. The discharge processing method according to claim 1, wherein the contact area between the electrode and the processing subject, the pressing pressure, the relative shifting rate and the viscosity of the processing medium are used as parameters, and in that the film thickness of

the processing medium between the electrode and the processing subject is controlled by changing at least one of these parameters.

11. The discharge processing method according to claim 1, wherein a conductive wire is used as the electrode.

12. The discharge processing method according to claim 1, wherein the processing is carried out while the electrode is being rotated.

13. A discharge processing device, wherein an insulating processing medium is interpolated between an electrode and a processing subject and discharging energy is supplied between the electrode and the processing subject so that the processing subject is processed by the discharge, characterized by comprising:

a pressing unit which presses an electrode onto a processing subject with a predetermined pressure; and

a driving unit which moves the electrode and the processing subject relative to each other,

wherein a processing is carried out while the electrode is pressed onto the processing subject at a predetermined pressure so as to allow a processing medium to form a thin film with the electrode and the processing subject being

relatively moved.

14. The discharge processing device according to claim 13, wherein the thin film is formed with a thickness of 0.1 to 1 μm.

15. The discharge processing device according to claim 13, wherein the relative movement is carried out in a spiral manner.

16. The discharge processing device according to claim 13, wherein a lubricant is used as the processing medium.

17. The discharge processing device according to claim 13, wherein grease is used as the processing medium.

18. The discharge processing device according to claim 13, wherein a material formed by allowing a polymeric water absorber to absorb water is used as the processing medium.

19. The discharge processing device according to claim 13, wherein silicon powder is mixed into the processing medium.

20. The discharge processing device according to claim 13, wherein a green compact, which is formed by compressing and molding metal such as titanium that forms a hard compound such as titanium carbide (TiC) or powder thereof, is used as the electrode, and a processing medium containing carbon is used as the processing medium.

21. The discharge processing device according to claim 13, wherein a green compact, formed by compressing and molding the same material as that of the processing subject or powder thereof, is used as the electrode.

22. The discharge processing device according to claim 13, further comprising a control unit which controls the contact area between the electrode and the processing subject, the pressing pressure, the relative shifting rate and the viscosity of the processing medium as parameters, and gives an instruction for changing at least one of the pressing pressure and the relative shifting rate.

23. The discharge processing device according to claim 13, wherein a conductive wire is used as the electrode.

24. The discharge processing device according to claim 13, further comprising a rotation unit which rotates the electrode.

25. The discharge processing device according to claim 13, further comprising:

a state memory unit which controls state changes between setting and resetting states;

a discharge energy charging unit containing a current regulating element that is driven by the setting state of the state memory unit made by a discharge instruction pulse;

a discharge energy accumulation unit that is charged by the discharge energy charging unit;

a discharge current control unit containing a discharge current regulating element placed between the discharge energy accumulation unit and the electrode; and

an excessive energy discharging unit which is connected to the discharge energy accumulation unit and contains a current regulating element that is driven by the resetting state of the state memory unit,

wherein the state memory unit is reset with a predetermined time delay after a generation of a discharge between the electrode and the processing subject so that the excessive energy discharging unit is driven.

26. The discharge processing device according to claim 13, wherein the power supply device includes,

a state memory unit which is inverted in its ON-OFF states by a discharge instruction pulse;

an AC rectangular wave power supply unit which is driven by the state memory unit, and includes a switching element that alternately connects the positive and negative electrodes of a dc power supply;

a discharge current control unit which is placed between the AC rectangular wave power supply unit and the electrode, and includes a capacitor and a current regulating element; and

a discharge energy control unit which is connected to the discharge current control unit, and is constituted by the capacitor and the current regulating element,

wherein a change in charge at the time when the ac rectangular power supply unit is switched between the positive and negative states in its output is allowed to form discharging energy.